

WHAT IS CLAIMED IS:

1. A printing apparatus, comprising:
a printhead substrate;
a plurality of heaters supported by the printhead substrate for firing drops of printing fluid;
a barrier supported by the printhead substrate and defining a plurality of firing chambers over the heaters, the barrier being adapted to change shape;
at least one controller for activating the plurality of heaters and for controlling the shape of the barrier in association with activation of the heaters;
and
an orifice plate defining a plurality of orifices over the firing chambers, the drops being fired through the orifices.
2. The apparatus of claim 1, wherein the barrier is adapted to change the size of the firing chambers in association with the activation of the heaters.
3. The apparatus of claim 1, wherein the barrier defines channels for feeding printing fluid to the firing chambers, the barrier being adapted to change the size of the channels in association with activation of the heaters to change refill rates of the firing chambers.
4. The apparatus of claim 1, wherein the barrier is formed of a shape-change material.
5. The apparatus of claim 4, wherein the shape-change material is a piezoelectric material.
6. The apparatus of claim 1, wherein each heater comprises a plurality of individually controllable heating elements.
7. The apparatus of claim 6, wherein the controller is adapted to control the size of the firing chambers based on control of the individually controllable heating elements.

8. A fluid ejection device, comprising:
 - a base;
 - a layer supported by the base, the layer defining an opening of variable size for containing fluid to be ejected from the fluid ejection device;
 - a fluid driver supported by the base and adapted to eject fluid drops of different sizes from the fluid ejection device; and
 - at least one controller operably coupled with the layer to adjust the size of the opening and operably coupled with the fluid driver to adjust the size of the ejected drops.
9. The device of claim 8, wherein the fluid driver comprises a plurality of individually controllable resistors.
10. The device of claim 9, wherein the number of individually controllable resistors activated by the controller determines the size of the ejected drops.
11. The device of claim 10, wherein the layer is formed of a piezoelectric material.
12. The device of claim 8, wherein the opening defines a firing chamber for ejecting the fluid.
13. The device of claim 8, wherein the opening defines a channel for feeding fluid for ejection.
14. A resistor arrangement for an inkjet printhead, the resistor arrangement comprising:
 - at least one inner resistor adapted to create a first drive bubble for ejecting a first drop of ink from the inkjet printhead; and
 - at least one outer resistor generally surrounding the inner resistor, the inner resistor and the outer resistor together being adapted to create a second drive bubble for ejecting a second drop of ink from the inkjet printhead, the second drop of ink being larger than the first drop of ink;

wherein the inner resistor and the outer resistor are electrically connected in parallel.

15. The resistor arrangement of claim 14, further comprising first and second switching devices, operably coupled with the inner and outer resistors, for selecting the inner and outer resistors.

16. The resistor arrangement of claim 15, wherein at least one of the first and second switching devices is electrically connected with a barrier formed of a shape-change material.

17. Apparatus for creating drive bubbles in a variable-size firing chamber, the apparatus comprising:

at least one first resistor adapted for creating a first drive bubble for ejecting a first drop of fluid;

at least one second resistor operably coupled with the first resistor, the first resistor and the second resistor together being adapted for creating a second drive bubble for ejecting a second drop of fluid, the second drop of fluid being larger than the first drop of fluid; and

a barrier operably coupled with the first resistor and the second resistor and defining a variable-size firing chamber, the barrier being controlled such that the firing chamber is of a first size for ejection of the first drop and is of a second size for ejection of the second drop, the second size being larger than the first size.

18. The apparatus of claim 17, wherein the barrier is controlled to cover the second resistor when the firing chamber is of the first size.

19. The apparatus of claim 17, in combination with at least one controller for controlling the first resistor, second resistor and barrier.

20. The apparatus of claim 17, wherein the barrier is formed of a piezoelectric material.

21. The apparatus of claim 17, wherein the barrier further defines a variable-size channel for refilling the firing chamber, the barrier being controlled to adjust a rate of refill of the firing chamber via the channel.
22. A method of controlling a printhead, the method comprising:
creating a drive bubble in a firing chamber to eject a drop of printing fluid from the printhead; and
changing the size of the firing chamber depending on the size of the drop.
23. The method of claim 22, further comprising using a shape-change material to change the size of the firing chamber.
24. The method of claim 23, further comprising energizing a piezoelectric material to change the size of the firing chamber.
25. The method of claim 22, further comprising changing the size of a channel used to refill the firing chamber.
26. The method of claim 22, further comprising:
creating a first drive bubble in the firing chamber with at least one first resistor;
creating a second drive bubble in the firing chamber with the first resistor and at least one second resistor, the second drive bubble being larger than the first drive bubble; and
changing the size of the firing chamber depending on whether the first drive bubble or the second drive bubble is created.
27. The method of claim 22, further comprising covering the second resistor when the first drive bubble is created.
28. The method of claim 27, further comprising energizing a piezoelectric material to change the size of the firing chamber.
29. A method of controlling a printhead, the method comprising:

creating a drive bubble in a firing chamber to eject a drop of printing fluid from the printhead; and

changing the size of a refill channel for the firing chamber.

30. A printhead, comprising:

means for creating a drive bubble in a firing chamber to eject a drop of printing fluid from the printhead; and

means for changing the size of the firing chamber depending on the size of the drop.

31. The printhead of claim 30, further comprising:

means for creating a first drive bubble in the firing chamber;

means for creating a second drive bubble, larger than the first drive bubble, in the firing chamber; and

means for changing the size of the firing chamber depending on whether the first drive bubble or the second drive bubble is created.

32. The printhead of claim 30, further comprising means for changing the size of a refill channel for the firing chamber.

33. An inkjet print cartridge, comprising:

an inkjet print cartridge body;

at least one ink reservoir within the inkjet print cartridge body;

a printhead substrate supported by the inkjet print cartridge body;

a plurality of heaters supported by the printhead substrate for firing drops of ink;

a barrier supported by the printhead substrate and defining a plurality of firing chambers in fluid communication with the reservoir and disposed over the heaters, the barrier being adapted to change shape;

at least one controller for activating the plurality of heaters and for controlling the shape of the barrier in association with the activation of the heaters; and

an orifice plate defining a plurality of orifices over the firing chambers, the drops being fired through the orifices.

34. An inkjet printer, comprising:
- a printer chassis;
 - a movement platform supported by the chassis for linear movement;
 - a feeder for feeding print media;
 - a printhead substrate supported by the movement platform;
 - a plurality of heaters supported by the printhead substrate for firing drops of ink;
 - a barrier supported by the printhead substrate and defining a plurality of firing chambers over the heaters, the barrier being adapted to change shape;
 - at least one controller for activating the plurality of heaters and for controlling the shape of the barrier in association with the activation of the heaters; and
 - an orifice plate defining a plurality of orifices over the firing chambers, the drops being fired through the orifices.
35. One or more computer-readable media having stored thereon a computer program that, when executed by a processor, causes printhead control according to the following method:
- creating a drive bubble in a firing chamber to eject a drop of printing fluid from the printhead; and
 - changing the size of the firing chamber depending on the size of the drop and/or changing the size of a refill channel for the firing chamber.